'dichotamous' system, now so generally and so deservedly popular. They are based primarily on length of wing, and there are usually several successive categories of equal rank. The objections to this arrangement are partly overcome by the use of very large type for the main headings.

The books are intended primarily for sportsmen and others "who are interested in birds and would like to know their names, but often find it no easy task to identify them by the 'bird books.'". That they fulfill this purpose admirably will be evident to all who use them. The paper and press work are good and the prices remarkably low.

Mr. Cory has made many contributions to ornithology, the most important of which relate to the 'Birds of the West Indies.' His entertaining 'Hunting and Fishing in Florida,' published about a year ago, gained him a wider circle of readers, but it is doubtful if any of his writings will prove so helpful to so large a class as the two that form the subject of this review.

C.H. M.

Les gaz de l'atmosphère. Par H. HENRIET. Paris, Gauthier-Villars et Fils; Masson et Cie.

This short treatise presents the reader in concise form a great deal of useful information with regard to the composition, methods of analysis, and rôle played by the various constituents, of the atmosphere. While the references to recent work would seem to indicate that the book is abreast of the times, the fact that, with few exceptions, the investigations noted are those by French scientists only is not calculated to inspire confidence in the author's conclusions. In the text, although the names of others than Frenchmen occasionally appear, there is no reference to any paper not printed in a French journal. In a bibliography whose length should guarantee its completeness, there is the title of one English book and that of one Italian memoir; the remainder are all French. On the other hand, as the book is evidently written for Frenchmen, it may be that the author gave only such references as would be readily available in almost any public library in France. On the whole, this defect will militate against the use of M. Henriet's convenient little book by others than his fellow-countrymen.

W. W. R.

Argon, a New Constituent of the Atmosphere. By LORD RAYLEIGH and PROFESSOR WILLIAM RAMSAY. Washington, The Smithsonian Institution. 1896.

This paper is published by the Smithsonian Institution in the form in which it was presented in competition for one of the Hodgkins Fund prizes. It remains but to notice that it differs from the abstract which appeared in the *Proceedings of the Royal Society*,* in that it contains detailed accounts of experiments and results omitted in many cases from the abstract; and from the fuller paper in the *Transactions*,† since the latter incorporates the results of later experiments in several directions.

It may be as well to call attention to a typographical error in the formula (p. 35) which indicates the relation between the velocity of sound in a gas and the ratio of the specific heats: 'N' should be '$\sqrt{\ }$'

W. W. R.

Atmospheric Actinometry and the Actinic Constitution of the Atmosphere. By E. DUCLAUX. Washington, The Smithsonian Institution. 1896.

This paper is a translation of that presented by M. Duclaux in competition for one of the Hodgkins Fund prizes. It represents an endeavor to measure the quantity and effect of the actinic solar rays, as distinguished from the luminous and calorific, under varying atmospheric and climatic conditions.

The reagent employed for these measurements is a solution of oxalic acid; this is rapidly oxidized by actinic rays, is not affected by the luminous rays and scarcely at all by the calorific, while the reaction is but slightly exothermic. From the summary of results the following may be noted as of special interest: The 'daily combustion' varies from one day to another much more than any other meteorological phenomenon. It shows the influence of the seasons and manifestly exhibits a maximum in the

* Vol. 57, p. 265. This paper also was published in this country, *e. g.*, *American Chemical Journal*, Vol. 17, p. 225.

† Vol. 186, p. 187.

spring. It is but feebly subject to the influence of altitude. So sensitive is it to the presence of oxidizable substances in the air that daily and local variations must be due to the existence in the atmosphere of 'actinic clouds' otherwise undiscoverable. In northern latitudes the atmosphere is less absorbent of actinic rays and hence that kind of radiation is more active relatively than in lower latitudes. The actinic effect of the sun increases more rapidly than the duration of its presence above the horizon; as a result, the effect produced during the long days of the northern summer is proportionally very great. The actinic effect may continue after the luminous effect of the sun's radiation has become clouded; thus the effect of a fine morning is not lost by a dark and cloudy evening. The duration of the day and the solar effect as usually measured are of little value for calculating the true actinic effect of sunlight. The paper as a whole is of unusual interest.

W. W. R.

SOCIETIES AND ACADEMIES.

KANSAS ACADEMY OF SCIENCE.

THE thirteenth annual meeting of the Academy was held at Baker University on October 27th, 28th and 29th, under the presidency of Professor S. W. Williston.

The scientific program was as follows:

The migrations of birds.....J. R. Mead
A list of the Goss Ornithological Collection, being the report of the Board of Curators....D. E. Lantz
A Bibliography of Kansas ornithology, with an historical list of Kansas Birds.....D. E. Lantz
A list of the birds taken in Mexico and Central America by the late Colonel N. S. Goss, with notes of localities.....D. E. Lantz
An historical list of Kansas mammals.....D. E. Lantz
The injurious insects of the year in Kansas.....S. J. Hunter
Kansas *Lachnosterna*.....Warren Knaus
Entomological collecting notes.....Warren Knaus
Observations on the elm-twig girdler.....Percy J. Parrott
The natural history possibilities of Belvidere, Kansas.....C. N. Gould
An inexpensive dissecting-stand for microscopical dissections.....S. J. Hunter
Biological notes.....S. J. Hunter
A floral horologue for Kansas.....B. B. Smyth
Root tubercles and their production by inoculation.....D. H. Otis
Therapeutical notes on some Kansas plants.....L. E. Sayre
Notes on Kansas plants.....A. S. Hitchcock
Bibliography of literature relating to wind effects on trees.....J. B. S. Norton
On the finding of insects in the Comanche Cretaceous of Kansas.....C. N. Gould
Fusulina cylindrica shell structure.....Alva J. Smith
Range and distribution of the *Mosasauria*.....S. W. Williston
A new *Labyrinthodont* from the Kansas Carboniferous.....S. W. Williston
Geological notes on Trego County and vicinity J. W. Beede
A preliminary report on the geology of the Delaware Valley in Atchison County.....J. W. Wilson
New developments in the Mentor beds...C. N. Gould
Extremes and means of Kansas climate....F. H. Snow
Viscosity of the ether.....A. St. C. Dunstan
Alternating currents in a Wheatstone bridge where branches contain resistance and capacities.....Martin E. Rice
Equilibrium of forces in a flim originally spherical, grounded in the presence of an external electric charge.....L. I. Blake
Some problems of marine telephony without wires.....L. I. Blake
The dehydration of gypsite.....E. H. S. Bailey
Some new mineral waters.....E. H. S. Bailey
Decomposition of some diazo compounds with methyl alcohol.....Geo. F. Weida
On the generation of finite transformations from infinitesmal transformations.....H. B. Newson
Additional notes on the timbered mounds of the Kaw Reservation.....C. N. Gould
Relativity in science.....E. B. Knerr

The subject of the President's address was 'Science and Education.'

NEW BOOKS.

Allgemeine Erdkunde. I. HANN, ED. BRÜCKNER and A. KIRCHOFF. II. part, fifth edition. Prag, Wien and Leipzig, F. Tempsky. 1898. Pp. xii+368. M. 8.

Das kleine botanische Practicum für Anfänger. EDWARD STRASBURGER. Third edition. Jena, Gustav Fischer. 1897. Pp. viii+246. M. 6.

Nature Study in Elementary Schools. MRS. L. L. WILSON. New York and London, The Macmillan Co. 1897. Pp. xix+262.